

-2-

Serial No. 09/870,291
Docket No. TUC920000096US1
Firm No. 0022.0005

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) A method for initializing a storage device comprising multiple storage units through a storage controller, comprising:

receiving a request to initialize a storage space that spans the storage units;

determining a layout of sets of sequential data blocks of the storage space onto the storage units, wherein sets of sequential data blocks are written across the storage units;

for each set of sequential data blocks, performing:

(i) determining a block address in each storage unit where a first data block in the set of sequential data blocks will be written; and

(ii) generating a write command for each of the storage units, wherein each write command indicates the determined block address for the storage unit and a block number; and

(iii) transmitting the write command with one block of initialization data to the storage unit, wherein the storage unit receiving the write command writes the block of initialization data from the indicated block address and writes the block of initialization data to each subsequent consecutive block in the storage unit a number of times equal to the block number.

2. (Original) The method of claim 1, wherein the determined layout includes multiple sets of sequential data blocks written to each storage unit, wherein the sequential data blocks of each set written to one storage unit are non-consecutive with respect to the sequential data blocks in adjacent sets written to the storage unit.

3. (Original) The method of claim 1, wherein the initialization data comprises zero data for the block.

-3-

Serial No. 09/870,291
Docket No. TUC920000096US1
Firm No. 0022.0005

4. (Original) The method of claim 1, wherein the storage units comprise hard disk drives within a disk array, and wherein the sets of sequential data blocks comprise portions of a stripe of data written across the storage units, wherein multiple stripes are written across the storage units.
5. (Original) The method of claim 1, further comprising:
indicating in the write command a code to cause the storage unit receiving the write command to write an error correction code to each block to which the initialization data is written.
6. (Original) The method of claim 5, wherein the code indicated in the write command further causes the storage unit receiving the write command to perform:
combining the block address of the block to which the error correction code is written with the error correction code.
7. (Original) The method of claim 5, wherein the error correction code written by the storage unit comprises a longitudinal redundancy check (LRC) code computed by performing an exclusive OR operation with respect to all the data in the block to which the error correction code is written.
8. (Original) The method of claim 1, wherein the data block comprises a sector including at least a header section, a user data section, and an error correction code section.
9. (Original) The method of claim 1, further comprising:
determining for each set of sequential data blocks a sequence number in each storage unit where a first data block in the set of sequential data blocks will be written, wherein each data block in the storage space is assigned a sequential number indicating a location in the storage space relative to all other data blocks; and
indicating in the write command the determined sequence number to cause the storage unit to write the sequence number of the data block in the storage space to each data block to which initialization data is written.

-4-

Serial No. 09/870,291
Docket No. TUC920000096US1
Firm No. 0022.0005

10. (Original) A method for initializing a storage unit that comprises one of multiple storage units managed by a storage controller, comprising:

receiving a write command with one block of initialization data from the storage controller to initialize a set of sequential blocks in a storage space, wherein the write command indicates a block address in the storage unit where a first data block in the set of sequential data blocks will be written and a block number;

writing the block of initialization data transmitted with the write command to the indicated block address; and

writing the block of initialization data to each subsequent consecutive block in the storage unit following the indicated block address a number of times equal to the block number.

11. (Original) The method of claim 10, wherein each storage unit receives multiple write commands to initialize multiple sets of sequential data blocks in the storage unit, wherein the sequential data blocks of each set written to one storage unit are non-consecutive with respect to the sequential data blocks in adjacent sets written to the storage unit.

12. (Previously Presented) The method of claim 10, wherein the storage units comprise hard disk drives within a disk array, and wherein the sets of sequential data blocks comprise portions of a stripe of data written across the storage units in the disk array, wherein multiple stripes are written across the storage units.

13. (Original) The method of claim 10, further comprising:
writing an error correction code to each block to which the initialization data is written.

14. (Original) The method of claim 13, wherein writing the error correction code further comprises:
combining the block address of the block to which the error correction code is written with the error correction code.

-5-

Serial No. 09/870,291
Docket No. TUC920000096US1
Firm No. 0022.0005

15. (Previously Presented) The method of claim 10, wherein the data block comprises a sector including at least a header section, a user data section, and an error correction code section.

16. (Previously Presented) A system for initializing a storage device comprising multiple storage units, comprising:

means for receiving a request to initialize a storage space that spans the storage units;

means for determining a layout of sets of sequential data blocks of the storage space onto the storage units, wherein sets of sequential data blocks are written across the storage units; and

means for performing, for each set of sequential data blocks:

(i) determining a block address in each storage unit where a first data block in the set of sequential data blocks will be written;

(ii) generating a write command for each of the storage units, wherein each write command indicates the determined block address for the storage unit and a block number; and

(iii) transmitting the write command with one block of initialization data to the storage unit, wherein the storage unit receiving the write command writes the block of initialization data from the indicated block address and writes the block of initialization data to each subsequent consecutive block in the storage unit a number of times equal to the block number.

17. (Original) The system of claim 16, wherein the determined layout includes multiple sets of sequential data blocks written to each storage unit, wherein the sequential data blocks of each set written to one storage unit are non-consecutive with respect to the sequential data blocks in adjacent sets written to the storage unit.

18. (Original) The system of claim 16, wherein the initialization data comprises zero data for the block.

-6-

Serial No. 09/870,291
Docket No. TUC920000096US1
Firm No. 0022.0005

19. (Original) The system of claim 16, wherein the storage units comprise hard disk drives within a disk array, and wherein the sets of sequential data blocks comprise portions of a stripe of data written across the storage units, wherein multiple stripes are written across the storage units.

20. (Original) The system of claim 16, further comprising:
means for indicating in the write command a code to cause the storage unit receiving the write command to write an error correction code to each block to which the initialization data is written.

21. (Previously Presented) The system of claim 20, wherein the code indicated in the write command further causes the storage unit receiving the write command to combine the block address of the block to which the error correction code is written with the error correction code.

22. (Original) The system of claim 20, wherein the error correction code written by the storage unit comprises a longitudinal redundancy check (LRC) code computed by performing an exclusive OR operation with respect to all the data in the block to which the error correction code is written.

23. (Original) The system of claim 16, wherein the data block comprises a sector including at least a header section, a user data section, and an error correction code section.

24. (Original) The system of claim 16, further comprising:
means for determining for each set of sequential data blocks a sequence number in each storage unit where a first data block in the set of sequential data blocks will be written, wherein each data block in the storage space is assigned a sequential number indicating a location in the storage space relative to all other data blocks; and

means for indicating in the write command the determined sequence number to cause the storage unit to write the sequence number of the data block in the storage space to each data block to which initialization data is written.

-7-

Serial No. 09/870,291
Docket No. TUC920000096US1
Firm No. 0022.0005

25. (Original) A system for initializing data in response to a command transmitted by a storage controller, comprising:

a storage unit;

means for receiving a write command with one block of initialization data from the storage controller to initialize a set of sequential blocks in a storage space, wherein the write command indicates a block address in the storage unit where a first data block in the set of sequential data blocks will be written and a block number;

means for writing the block of initialization data transmitted with the write command to the indicated block address in the storage unit; and

means for writing the block of initialization data to each subsequent consecutive block in the storage unit following the indicated block address a number of times equal to the block number.

26. (Original) The system of claim 25, further comprising:

means for receiving multiple write commands to initialize multiple sets of sequential data blocks in the storage unit, wherein the sequential data blocks of each set written to one storage unit are non-consecutive with respect to the sequential data blocks in adjacent sets written to the storage unit.

27. (Previously Presented) The system of claim 25, further comprising:

a disk array including multiple storage units, wherein the storage units comprise hard disk drives within a disk array, and wherein the sets of sequential data blocks comprise portions of a stripe of data written across the storage units in the disk array, wherein multiple stripes are written across the storage units.

28. (Original) The system of claim 25, further comprising:

means for writing an error correction code to each block to which the initialization data is written.

-8-

Serial No. 09/870,291
Docket No. TUC920000096US1
Firm No. 0022.0005

29. (Original) The system of claim 28, wherein the means for writing the error correction code further performs:
combining the block address of the block to which the error correction code is written with the error correction code.

30. (Original) The system of claim 25, wherein the data block comprises a sector including at least a header section, a user data section, and an error correction code section.

31. (Original) An article of manufacture comprising code executed by a storage controller for initializing a storage device comprising multiple storage units by:
receiving a request to initialize a storage space that spans the storage units;
determining a layout of sets of sequential data blocks of the storage space onto the storage units, wherein sets of sequential data blocks are written across the storage units;
for each set of sequential data blocks, performing:

(i) determining a block address in each storage unit where a first data block in the set of sequential data blocks will be written; and

(ii) generating a write command for each of the storage units, wherein each write command indicates the determined block address for the storage unit and a block number; and

(iii) transmitting the write command with one block of initialization data to the storage unit, wherein the storage unit receiving the write command writes the block of initialization data from the indicated block address and writes the block of initialization data to each subsequent consecutive block in the storage unit a number of times equal to the block number.

32. (Original) The article of manufacture of claim 31, wherein the determined layout includes multiple sets of sequential data blocks written to each storage unit, wherein the sequential data blocks of each set written to one storage unit are non-consecutive with respect to the sequential data blocks in adjacent sets written to the storage unit.

-9-

Serial No. 09/870,291
Docket No. TUC920000096US1
Firm No. 0022.0005

33. (Original) The article of manufacture of claim 31, wherein the initialization data comprises zero data for the block.

34. (Original) The article of manufacture of claim 31, wherein the storage units comprise hard disk drives within a disk array, and wherein the sets of sequential data blocks comprise portions of a stripe of data written across the storage units, wherein multiple stripes are written across the storage units.

35. (Original) The article of manufacture of claim 31, wherein the code further causes the storage controller to perform:

indicating in the write command a code to cause the storage unit receiving the write command to write an error correction code to each block to which the initialization data is written.

36. (Original) The article of manufacture of claim 35, wherein the code indicated in the write command further causes the storage unit receiving the write command to perform:

combining the block address of the block to which the error correction code is written with the error correction code.

37. (Original) The article of manufacture of claim 35, wherein the error correction code written by the storage unit comprises a longitudinal redundancy check (LRC) code computed by performing an exclusive OR operation with respect to all the data in the block to which the error correction code is written.

38. (Original) The article of manufacture of claim 31, wherein the data block comprises a sector including at least a header section, a user data section, and an error correction code section.

39. (Original) The article of manufacture of claim 31, wherein the code further causes the storage controller to perform:

-10-

Serial No. 09/870,291
Docket No. TUC920000096US1
Firm No. 0022.0005

determining for each set of sequential data blocks a sequence number in each storage unit where a first data block in the set of sequential data blocks will be written, wherein each data block in the storage space is assigned a sequential number indicating a location in the storage space relative to all other data blocks; and

indicating in the write command the determined sequence number to cause the storage unit to write the sequence number of the data block in the storage space to each data block to which initialization data is written.

40. (Original) An article of manufacture including code executed by a storage unit for initializing the storage unit executing the code, wherein the storage unit is one of multiple storage units managed by a storage controller, wherein the code causes the storage unit to perform:

receiving a write command with one block of initialization data from the storage controller to initialize a set of sequential blocks in a storage space, wherein the write command indicates a block address in the storage unit where a first data block in the set of sequential data blocks will be written and a block number;

writing the block of initialization data transmitted with the write command to the indicated block address; and

writing the block of initialization data to each subsequent consecutive block in the storage unit following the indicated block address a number of times equal to the block number.

41. (Original) The article of manufacture of claim 40, wherein each storage unit receives multiple write commands to initialize multiple sets of sequential data blocks in the storage unit, wherein the sequential data blocks of each set written to one storage unit are non-consecutive with respect to the sequential data blocks in adjacent sets written to the storage unit.

42. (Previously Presented) The article of manufacture of claim 40, wherein the storage unit comprises a hard disk drive within a disk array, and wherein the sets of sequential data blocks comprise portions of a stripe of data written across the storage units in the disk array, wherein multiple stripes are written across the storage units.

-11-

Serial No. 09/870,291
Docket No. TUC920000096US1
Firm No. 0022.0005

43. (Original) The article of manufacture of claim 40, wherein the code further causes the storage unit to perform:

writing an error correction code to each block to which the initialization data is written.

44. (Original) The article of manufacture of claim 43, wherein writing the error correction code further comprises:

combining the block address of the block to which the error correction code is written with the error correction code.

45. (Original) The article of manufacture of claim 40, wherein the data block comprises a sector including at least a header section, a user data section, and an error correction code section.

46. (Original) A computer readable medium including a command used for initializing a storage unit that comprises one of multiple storage units managed by a storage controller, wherein the command is associated with the following data:

one block of initialization data used to initialize a set of sequential blocks in a storage space;

a block address in the storage unit where a first data block in the set of sequential data blocks will be written; and

a block number, wherein the command causes the storage unit to write the block of initialization data to the indicated block address and to each subsequent consecutive block in the storage unit following the indicated block address a number of times equal to the block number.

47. (Currently Amended) The computer readable medium of claim 46, wherein the storage units comprise hard disk drives within a disk array, and wherein the sets of sequential data blocks comprise portions of a stripe of data written across the storage units in the disk array, wherein multiple stripes are written across the storage units.

-12-

Serial No. 09/870,291
Docket No. TUC920000096US1
Firm No. 0022.0005

48. (Original) The computer readable medium of claim 46, wherein the command further includes:

data indicating whether to write an error correction code to each block to which the initialization data is written.

49. (Original) The computer readable medium of claim 46, wherein the data blocks that are initialized each comprise a sector including at least a header section, a user data section, and an error correction code section.

50. (Original) The computer readable medium of claim 46, wherein the initialization data comprises zero data for the block.

51. (Original) The computer readable medium of claim 46, further comprising:
a determined sequence number, wherein each data block in the storage space is assigned a sequential number indicating a location in the storage space relative to all other data blocks.